



UNITED STATES GENERAL ACCOUNTING OFFICE  
REGIONAL OFFICE  
ROOM 403, U.S. CUSTOMHOUSE, 610 SOUTH CANAL STREET  
CHICAGO, ILLINOIS 60607

093073

12/13/74

Major General John Raaen, Jr.  
Commander  
U. S. Army Armament Command  
Rock Island, Illinois 61201



Dear General Raaen:

We have completed a survey of industrial management activities at Rock Island Arsenal, Rock Island, Illinois. Although we do not plan to do additional work at this time, we would like to call your attention to our observations which, in our opinion, offer potential for improving the efficiency and effectiveness of the arsenal's current operations, as well as its planning for production in the event of a national emergency.

These matters were discussed with the Commander, Rock Island Arsenal, and his comments are included, where appropriate.

WORK MEASUREMENT

High productivity levels generally cannot be achieved in an industrial facility without techniques to measure performance. Labor standards are generally recognized as the best tool to measure productivity of the labor force. Such standards indicate the time necessary for an operation to be performed by an experienced operator working effectively at a normal pace in a predetermined manner, allowing adequate time for fatigue and personal needs.

Labor performance standards at Rock Island Arsenal are used in determining manpower and equipment needs as well as evaluating the performance of the workforce. Our survey indicated that the work measurement program could be improved in the following areas.

Organization

The Arsenal Operations Directorate (AOD), the Logistic Support Directorate (LSD), and the Comptroller's Office have staff responsible for developing performance standards. Both AOD and LSD set their own standards while the Comptroller's Office sets standards for the other organizational units at the arsenal.

714251

093073

In April 1973, the Army Material Command (AMC) directed the arsenal to consolidate the work measurement activity into the Comptroller's Office to achieve a more efficient and effective program. In a series of letters the arsenal objected to this proposal and in May 1974, AMC agreed to the decentralized arrangement.

We believe AMC's initial recommendation that the work measurement function be consolidated is sound. Objectivity on the part of the staff responsible for setting standards is a basic ingredient in a successful work measurement program, i.e., persons setting standards should be organizationally independent of the activity being served.

The Arsenal Commander acknowledged that consolidation of the work measurement staff is generally considered to be desirable, but he said he relies on the honesty and integrity of his people to achieve objectivity.

#### Updating allowances for unavoidable delays

Within AOD engineered performance standards are increased by 10 to 30 percent to allow for unavoidable delays. Our survey showed that many of the allowances have not been updated since the 1950's. A methods and standards official estimates that about 50 percent of AOD's jobs are "loose" (too much time allotted to the job) because of the outdated allowances. We were told that updating allowances, while necessary, is time-consuming, low-priority work and that the limited (12-man) methods and standards staff is needed for other purposes.

The Arsenal Commander agrees that updating of allowances should be given higher priority.

#### Documentation of standards

An arsenal regulation provides that all Category I and II labor performance standards be supported by a methods study, description of the approved method, work place plan or description, summary of elemental times or categories and the number of actual observations made of each, a record of the mathematical compilations, and actual work sheets from the study. Category I are engineered performance standards and Category II are standards based on statistical data and technical estimates.

After a recent review of LSD's Category I labor standards the ARMCOM concluded that:

"Standards back-up files reviewed did not contain adequate data to establish an audit trail supporting the category assigned to standards."

About 77 percent of the 84,558 hours worked in LSD during the quarter ended June 30, 1974, were against these standards.

The arsenal agreed to document the standards in accordance with regulations over a two-year period.

There is no support for Category II labor standards within AOD. An official stated that such standards are "guesstimates"--with no documentation. About 25 percent of the 177,048 hours worked in AOD during the quarter ended June 30, 1974, were against those standards.

The Arsenal Commander agrees that the derivation of standards should be documented.

#### FORCE DEVELOPMENT

In February 1974, the arsenal developed justification for 195 employees to be added to the permanent work force in support of firm and projected workload through December 1975. On April 24, 1974, the arsenal received approval for this increase.

To determine manpower needs in the AOD, the projected workload is converted to standard direct labor hours by applying labor standards. Factors such as annual leave, sick leave, and workforce efficiency are applied to the standard direct labor hours to determine the number of men needed.

Our survey indicates that the need for 195 additional employees is questionable since the justification appears to understate available workforce and includes an allowance for inefficiency which increases manpower needs.

Further, after the increase was authorized, the arsenal lost a repair and overhaul workload for which the need for about 77 men was forecast over much of the projection period.

#### Understatement of available workforce

In the justification for 195 additional personnel the arsenal projected a need for 892 direct laborers a month for the period February 1974 through January 1975 against an available permanent workforce

of 700 direct laborers. The ARMCOM, in requesting authorization for the 195 additional personnel from the AMC, projected an available permanent force of 736 direct laborers. Actual experience for the January to April 1974 timeframe averaged 772 direct laborers a month. This average included about 40 temporary employees.

#### Allowance for inefficiency

In projecting manpower needs, the arsenal adds an "efficiency contingency" factor (about 15 percent) to standard direct labor hours. This has the effect of sizing the workforce so that the projected work can be done with the workforce operating at 85 percent efficiency which, in our opinion, greatly reduces the incentive to achieve greater efficiency.

Arsenal officials stated that the contingency factor is based on a learning curve and performance against standards which has been in the 80 to 90 percent range.

Use of a contingency factor seems inappropriate for justification of manpower needs because it constitutes management's acceptance of less than 100 percent performance both in the past and in the future.

#### Loss of projected workload

The arsenal projected a need for men to support the repair and overhaul activity through December 1975. This need increased from three a month in February 1974 to 77 in September 1974 and held at about that level through December 1975. However, on May 15, 1974, it was announced that the arsenal would lose the repair and overhaul work as of December 31, 1974.

The Arsenal Commander expressed reservations as to the need for justification of the workforce.

#### MOBILIZATION PLANNING

The arsenal does not have a current plan which details how they will produce the items which they have agreed to produce during mobilization. As a result, there is some doubt as to their ability to meet mobilization production requirements in the timeframes agreed to.

One of the primary justifications for maintaining arsenals is their purported rapid response capability in the event of emergency.

The arsenal has agreed to produce 23 major items and about 2,000 secondary items during mobilization. Requirements for some items are very high, e.g., 478 gun mounts and 803 machine guns a month. For the major items, first production ranges from 4 to 14 months.

A current production plan including details on equipment layout, material handling, product flow, and the like is, in our opinion, necessary for orderly transition from a relatively low level of peacetime production to high volume mobilization production.

The Arsenal Commander agrees that such a plan is needed to assure timely response.

#### CONCLUSIONS AND SUGGESTIONS

Because of the importance of work standards in determining manpower and equipment needs at the arsenal, as well as evaluating the performance of the workforce, we believe that a concerted effort is needed to improve the work measurement program at the arsenal. We think that the work measurement staff should be consolidated and that its duties should be reconsidered with particular emphasis on establishing and updating standards in accordance with Army regulations.

The issues of available direct labor force, use of the allowance for inefficiency and loss of a portion of the workload raise some question as to the authorization for 195 additional employees. ARMCOM should determine the validity of the arsenal's available direct labor projection in light of actual experience (as well as the ARMCOM projection) and include this with the loss of workload into a reduction of the authorization. With respect to the use of allowances for inefficiency management should attempt to meet increases in workload by increasing the efficiency of the existing workforce rather than condoning inefficiency through the use of allowances. ARMCOM should direct the arsenal to delete these allowances from its manpower computations and lower the authorization accordingly.

A plan for production is essential for a quick response in the event of mobilization. Dependence on the arsenal operation for its items to interface with related end items from other arsenals and production plants dictates a quick response based on prearranged production planning. The ARMCOM should require specific plans from arsenals as to how they will produce materiel in the quantities and timeframes agreed to.

We would appreciate your views and advice of any actions you intend to take on the matters discussed in this letter. If you have any questions, we would be happy to discuss them with you.

Sincerely yours,

  
G. F. Stromvall  
Regional Manager